

English translation of Official Letter
in Taiwanese patent application

Notice of Office Action

Receiver: TOKYO OHKA KOGYO CO., LTD.

Mailed: January 5, 2004

1. Application No.: 090128609
2. Title of the invention: METHOD FOR FORMING A HOLE-
PATTERNED PHOTORESIST LAYER
3. Applicant: Name: TOKYO OHKA KOGYO CO., LTD.
Address: Japan
4. Attorney:
5. Filing date: November 19, 2001
6. Priority data: 11/20/2000 Japan 2000-353509
7. Examiner:
8. Content of decision:
Syllabus: The present invention should not be granted a patent.
Ground: Paragraph 2 of Article 20 of the Patent Law.
Reasons:

- (1) The present application entitled "Method for forming a hole-patterned photoresist layer" relates to a method for the formation of a fine hole pattern on a substrate surface in a photolithographic patterning process, wherein the photoresist composition employed comprises: (A) a hydroxystyrene-based copolymer capable of being imparted with increased solubility in an aqueous alkaline solution by interacting with an acid, (B) a compound capable of generating an acid by irradiation with a radiation, (C) a crosslinking agent having, in a molecule, at least two vinyloxy groups, and (D) an organic amine compound.
- (2) The technology of preparing a chemically amplified positive photoresist by using a hydroxystyrene-based copolymer and a photosensitive acid generator has been disclosed in US 5962184, US 5916728 and US 5891601, wherein US 5916728

discloses a photoresist composition comprising an organic amine compound. Next, US 5846690 discloses a photoresist composition comprising a crosslinking agent, a hydroxystyrene-based copolymer and a photosensitive acid generator. The present invention utilized conventional technology and can be easily completed by skilled persons in the art, thus it does not have inventive step.

- (3) It is seen from Table 1 in the specification that the results of "Dimples" and "Thermal flow characteristics" for the Comparative Example 1 are inconsistent. In fact, in the present application, the species of the resinous compound (A) and the crosslinking agent (C) are very much associated, and the key technical features also reside in the heat treatment, the thickness of the photoresist layer, and the resist pattern size reduction per degree centigrade of the thermal flow. Therefore, claims 1 and 5 have not set forth the complete technical features of the present application.

In conclusion, the instant application fails to conform to the statutory patent requirements and therefore a patent should not be granted thereto in accordance with Paragraph 2 of Article 20 of the Patent Law.

經濟部智慧財產局專利核駁審定書

受文者：東京應化工業股份有限公司（代理人：

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2004 年 1 月 5 日	2004 年 1 月 1 日
受 信 日	受 信 日

一、申請案號數：〇九〇一二八六〇九

專利分類IPC(7)：... G03F 7/004, 7/26

二、發明名稱：用以形成具有穿孔圖案之光阻層的方法

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五、申請日期：九十年十一月十九日

六、優先權項目：1 2000/1/20 日本2000-353509

七、審查人員姓名：彭立祥 委員



八、審定內容：

主文：本案應不予專利。

依據：專利法第二十條第二項。

理由：

(一) 本案「用以形成具有穿孔圖案之光阻層的方法」技術特徵係揭示一種光阻層在照相片印刷形成圖案法，其光阻組成物包括有含羥基苯乙烯為底質共聚物，其藉由與酸交互作用而提高在鹼性水溶液之溶解度／光酸產生劑化合物／交聯劑如含乙烯氧兩個以上之化合物／有機胺化合物等。

(二) 經查利用含羥基苯乙烯為底質共聚物與光酸產生劑化合物作為化學增幅正型光阻劑前案技術已見於US 5962184、5916728及5891601。其中US 5916728光阻劑組成物含有有機胺化合物；US 5846690揭示應用交聯劑應用含羥基苯乙烯為底質共聚物／光酸產生劑的光阻劑組成中。故本案係運用申請前既有之技術，而為熟習該項技術者所能輕易完成者，不具進步性。

(三) 本案由實施例「表1」顯示對照實例1「小凹」效果與「熱流特徵」效果並不相同；本案組成物中(A)樹脂組成物與(C)交聯劑選擇是息息相關，另其方法熱處理／光阻膜厚／熱流之每單位溫度的光阻圖案縮小尺度是決定本案技術主要技術特徵，因此申請專利範圍第1、5項未敘明完整技術特徵，併此指出。



據上論結，本案不符法定專利要件，爰依專利法第二十條第二項，審定如主文。

局長 蔡練生

依照分層負責規定授權單位主管決行

如不服本審定，得於文到之次日起三十日內，備具再審查理由書一式二份及規費新台幣陸仟元整（專利說明書及圖式合計在五十頁以上者，每五十頁加收新台幣五百元，其不足五十頁者以五十頁計），向本局申請再審查。